

Advanced Asset Management



Doug Stewart

Orange County Sanitation District
EPA Seminar Sept. 10, 2003



**OCSD Reclamation Plant No. 1
Fountain Valley, CA**

**OCSD Treatment Plant No. 2
Huntington Beach, CA**



OCSD Service Area

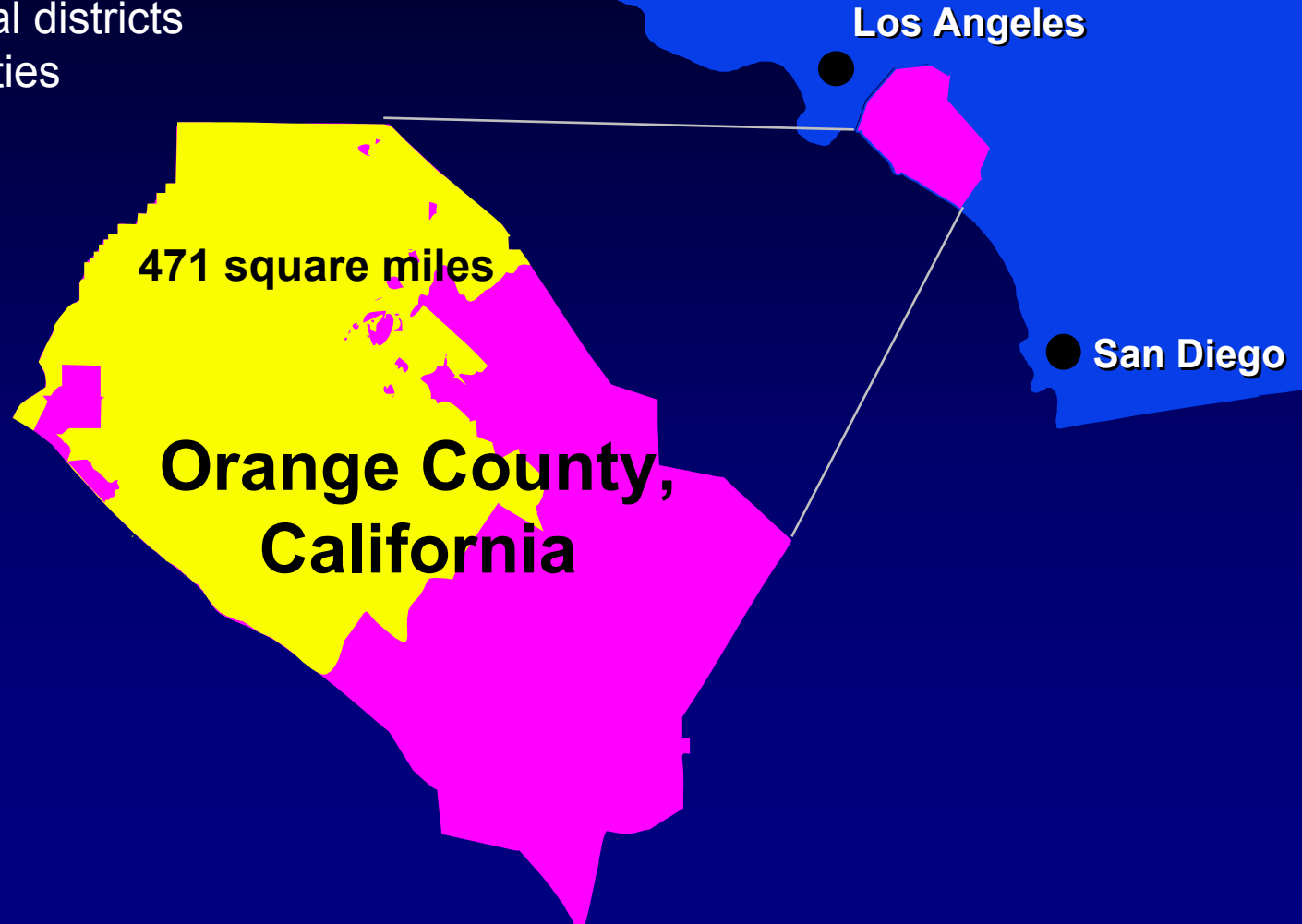
471 square miles

243 million gallons per day

2.3 million population

21 cities, 3 special districts

19 pumping facilities



Genesis for AM at OCSD

- ◆ 1995 – privatization assessment (20%)
- ◆ 2000 – International infrastructure management manual (IIMM) – Aus/NZ approach
- ◆ Jun 2001 – benchmarking with West Coast agencies
- ◆ Feb 2001 – sold “concept” to management
- ◆ Nov 2001 – RFP for AM Strategic Plan
- ◆ Apr 2002 – Board approval of first phase

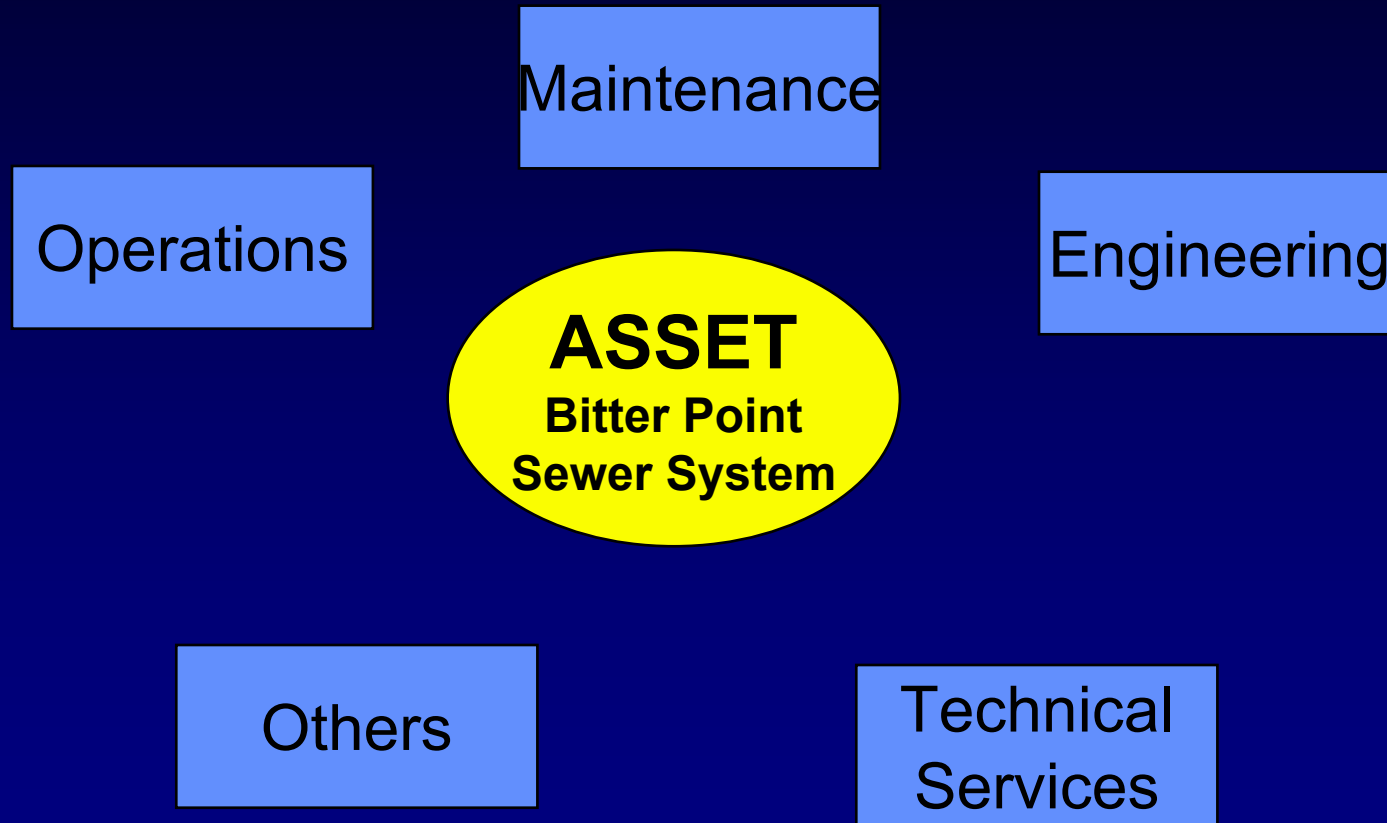
OCSD Example: Bitter Point Sewer Line

Why asset management?

Bitter Point Background

- ◆ First barrel constructed in 1959, now triple pipeline
- ◆ First failed in 1984, then 1986 and 1989
- ◆ 3 spills in 2001
- ◆ Failures due to corrosion
- ◆ Inspection in 2000 reveals high corrosion
- ◆ H₂S levels at over 10,00 ppm levels (40x normal)

What Did We Learn?



The Australia / New Zealand Asset Management Study Tour

International Infrastructure Management MANUAL



Australia/New Zealand Edition

What is AM Down Under?

- ◆ Over-arching management process that drives the organization in everything they do
- ◆ Core business of utility – produces corporate alignment
- ◆ Strategic business planning is a way of life
- ◆ Custodianship of assets over the long term
- ◆ Framework for management of sustainable infrastructure

What is AM Down Under? (cont'd)

- ◆ Risk management, risk-based decision making, quality of decision making
- ◆ Public accountability for asset condition and performance
- ◆ Highly focused customer service
- ◆ Focused on management inputs with auditable results

Three-Stage Process to Begin Implementing AM

1. Dec 2002 – Asset Management Strategic Plan
2. Dec 2003 – focused implementation plans
3. Structured implementation (3 and 10-year targets)

Why do this? – Education and buy-in from the organization about AM

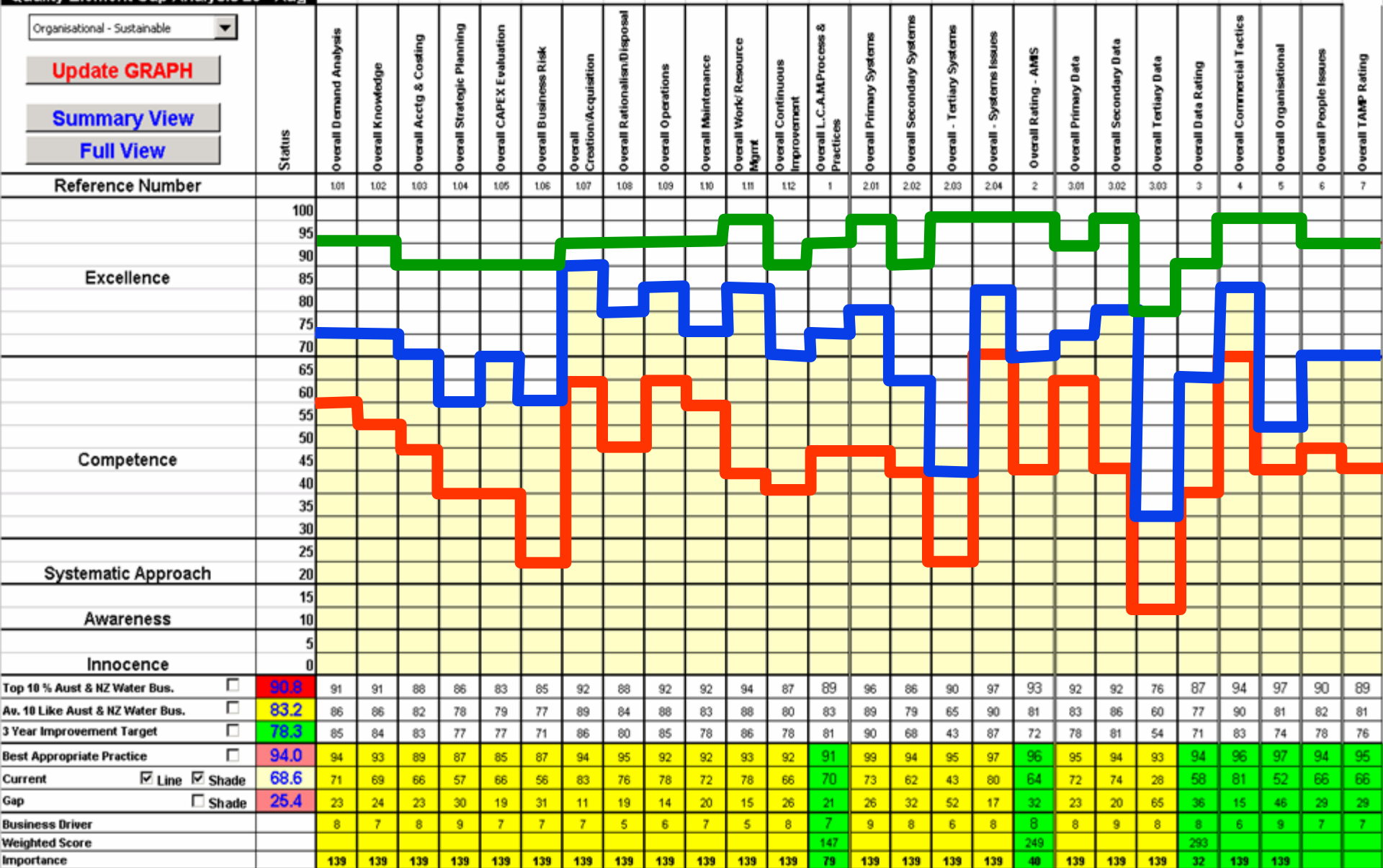
Orange County Sanitation District
Quality Element Gap Analysis 26 - Aug

Organisational - Sustainable

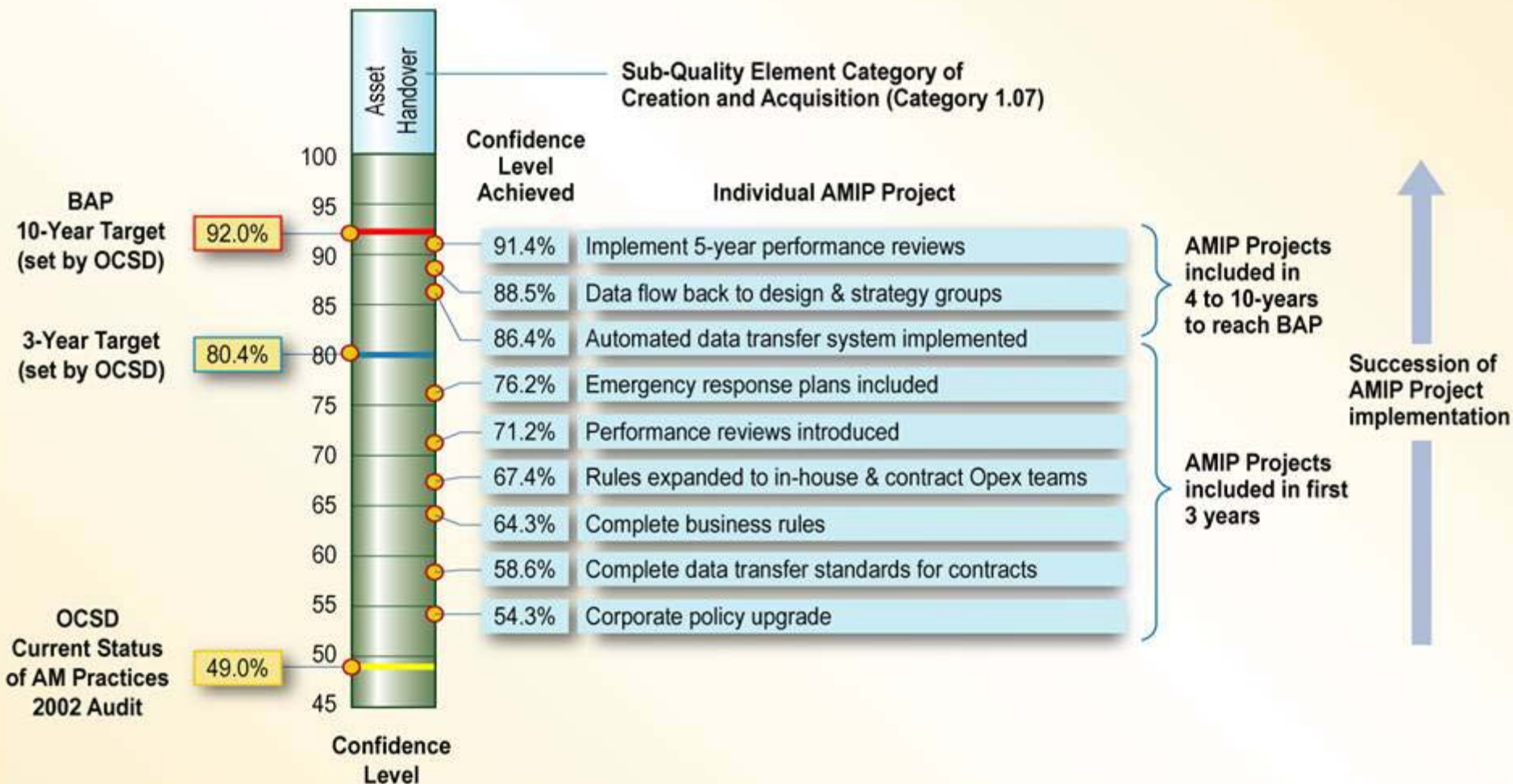
Update GRAPH

Summary View

Full View



3-Year BAP Target Setting Results in Asset Management Improvement Program Projects



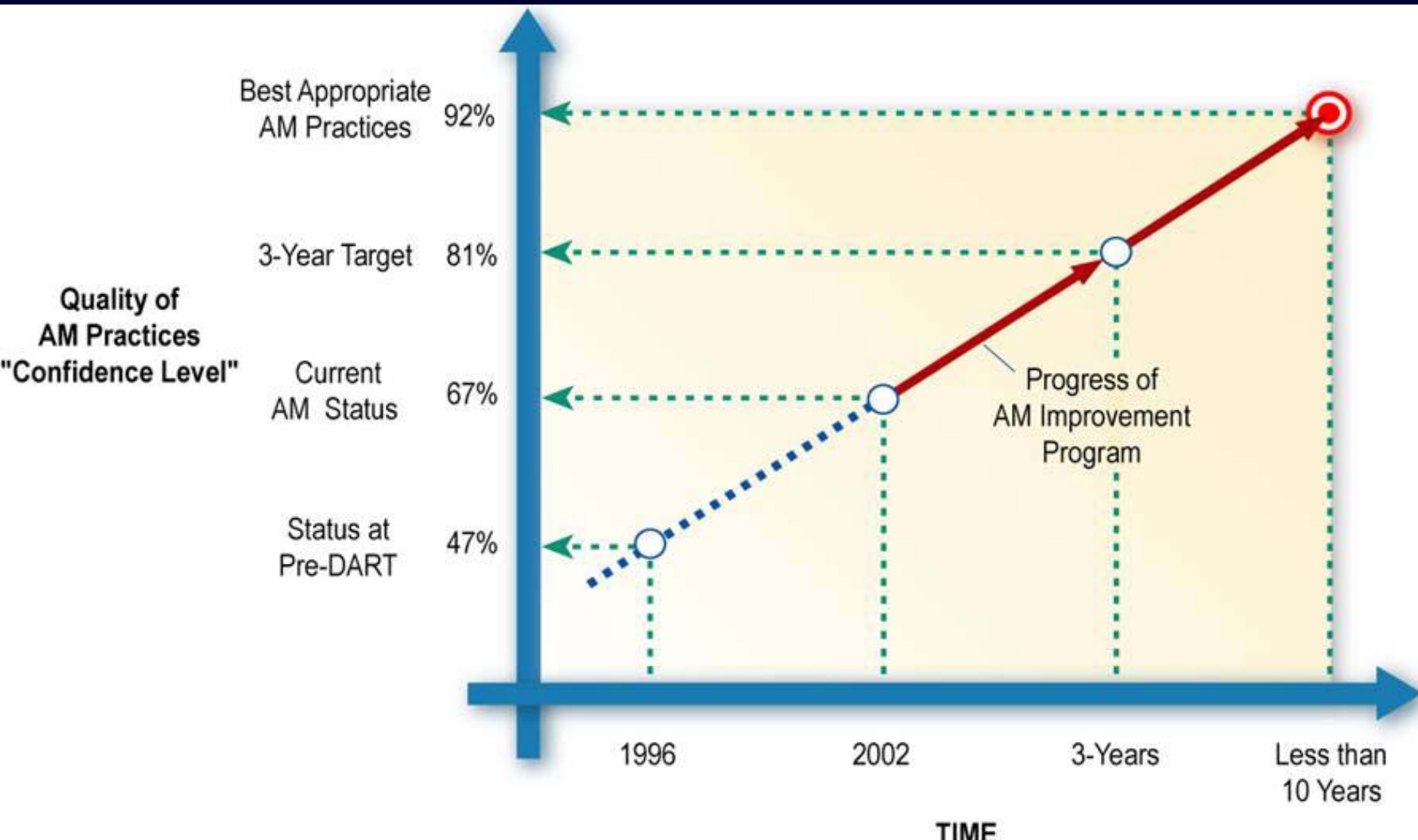
Why a Gap Analysis Process?

- ◆ Understand current state of AM practices
- ◆ Compares OCSD with proven best practices
- ◆ Establishes Best Appropriate Practices to suit OCSD's needs
- ◆ Gap tells you what needs to be done
- ◆ Establishes reliable, proven means to monitor and track AM progress

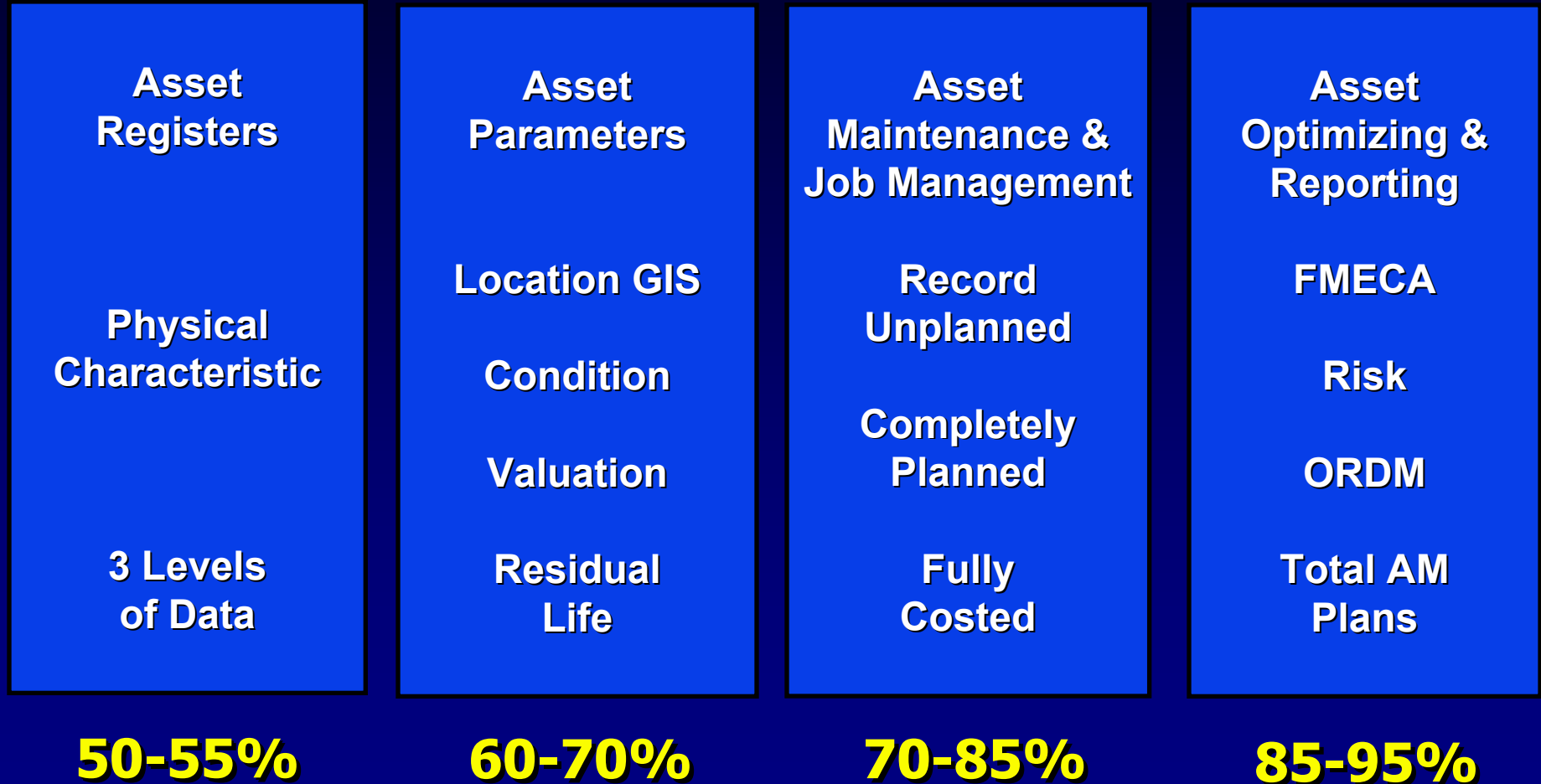
OCSD AM BAP Quality Goals

◆ Pre-reinvention	47.2%
◆ Now	67.8%
◆ 3-year	81.3%
◆ 10-year	92.2%
◆ Avg Aus Sewer Bus.	80.8%
◆ Top 10% Aus Sewer Bus.	90.1%
◆ Avg All Aus Bus.	86.4%

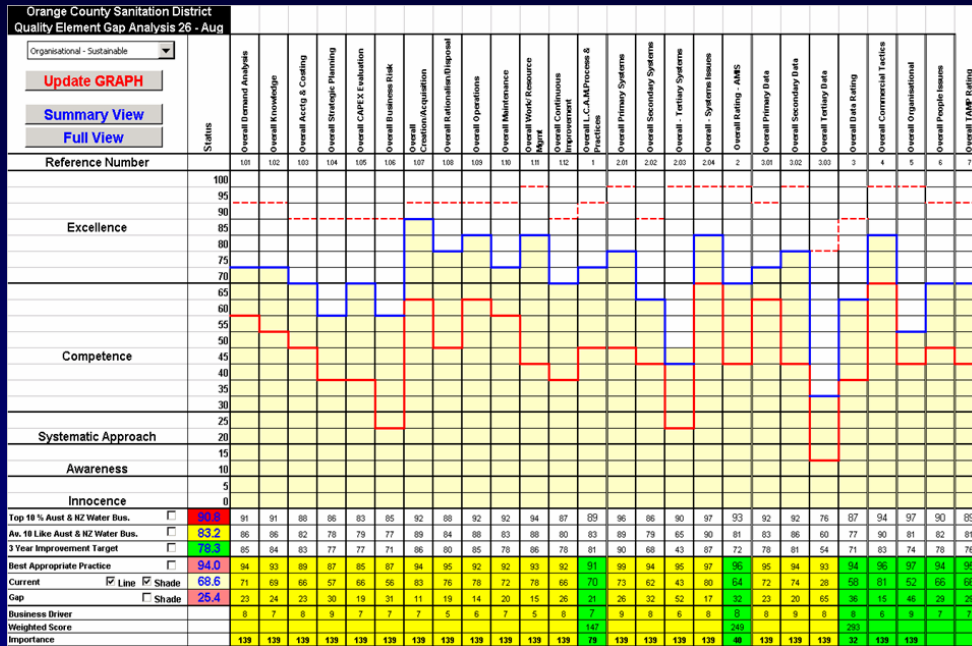
OCSD's Confidence Rating



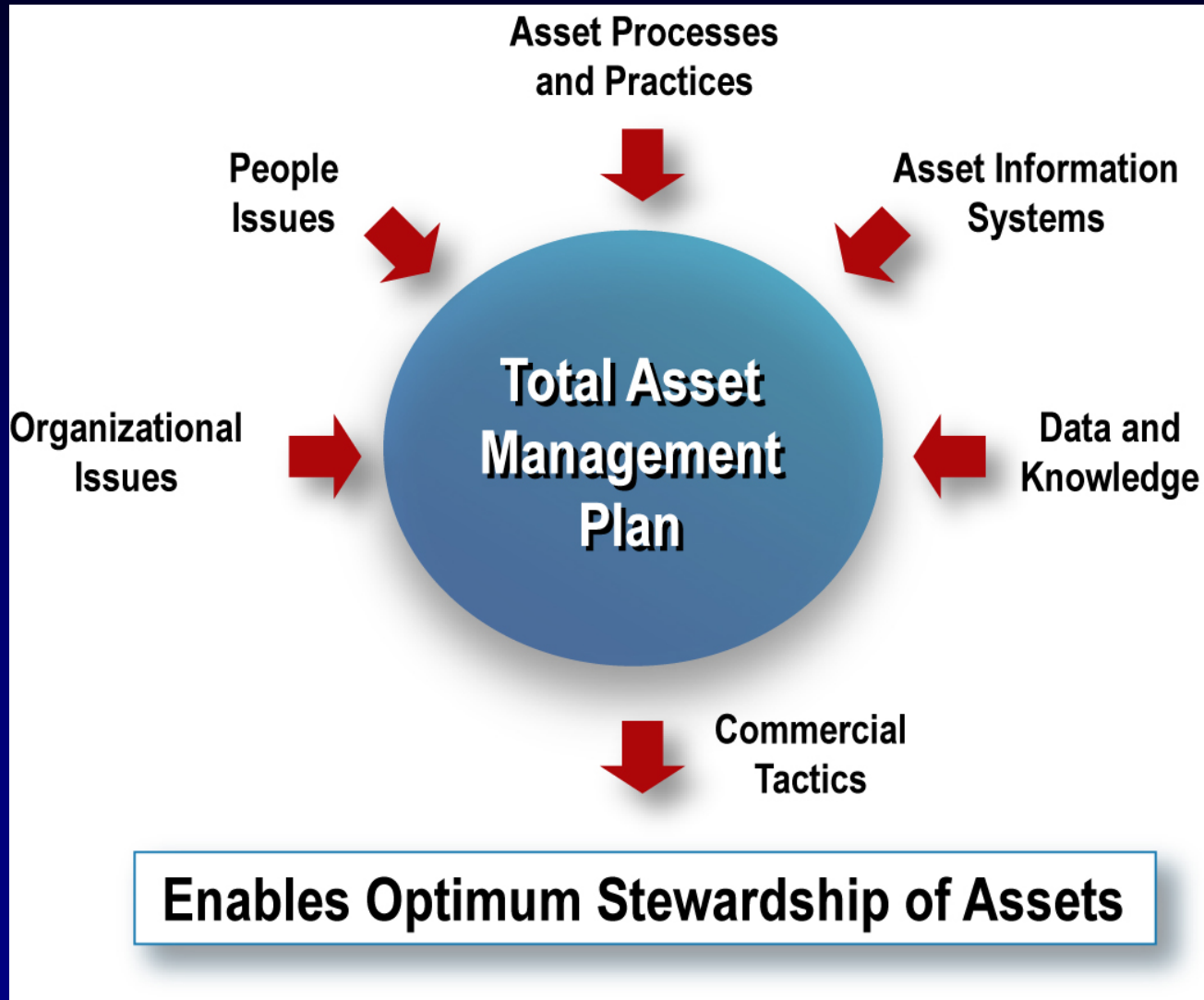
Stages of AM Confidence Level



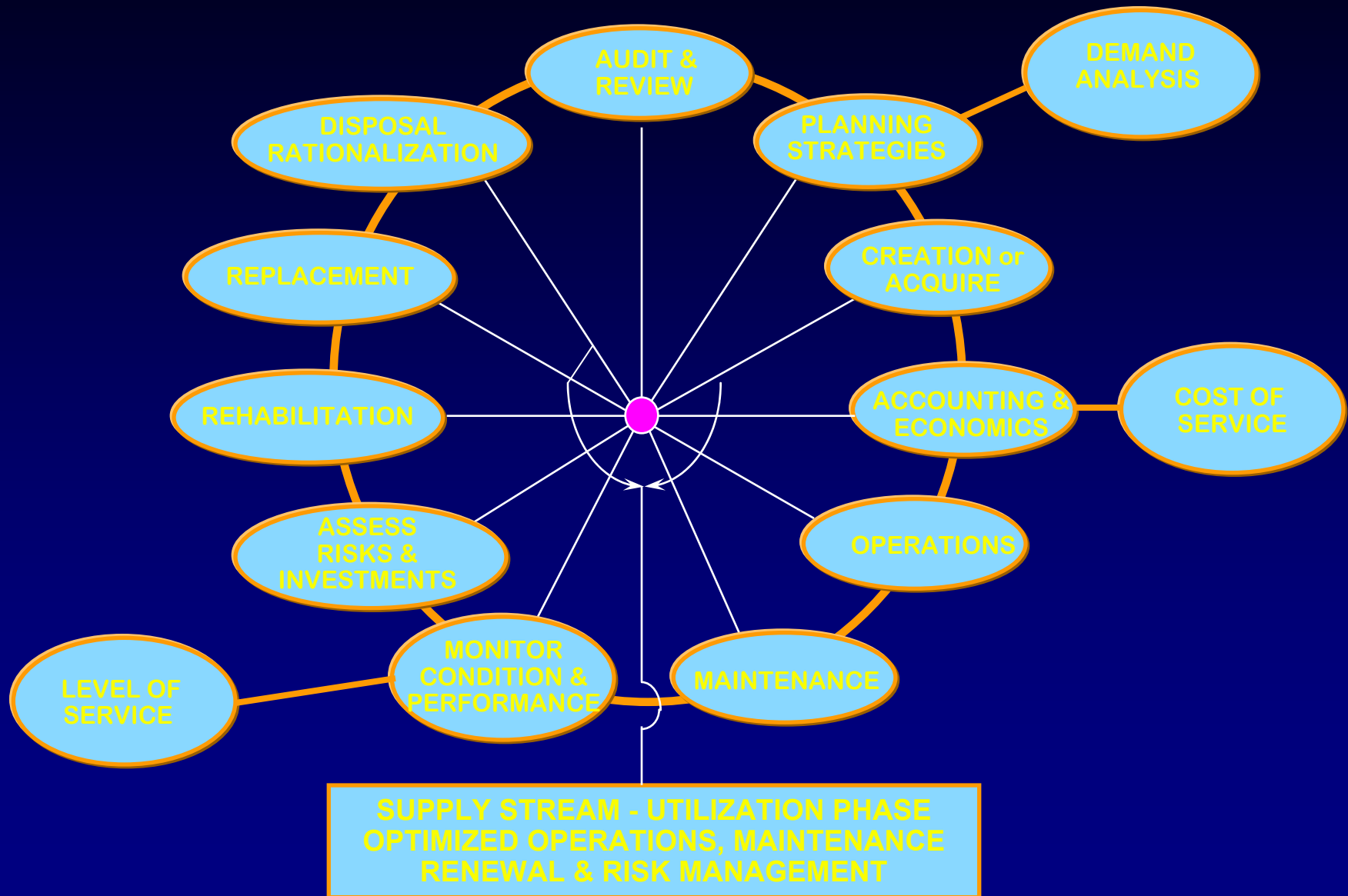
Review of Gap Analysis Tool



Assessment of Current Practices



Lifecycle AM Functional Elements



Parsons/GHD's Best Practices Assessment Tool

- ◆ Best Practices
 - ◆ 176 categories
 - ◆ 750+ practices
 - ◆ 15 years of refinement
 - ◆ Proven practices

Ensures you get an accurate and
comprehensive organizational assessment
to suit your business

Process that Yields Quantitative and Accurate Assessment

OCSD AM Strategic Plan

Engineering Interview – July 8, 2002

1.01 Demand Analysis

1.01.01 History Records

Parsons/GHD assesses the past historical trends in demand and the depth of knowledge that the organization holds.

QUESTIONS

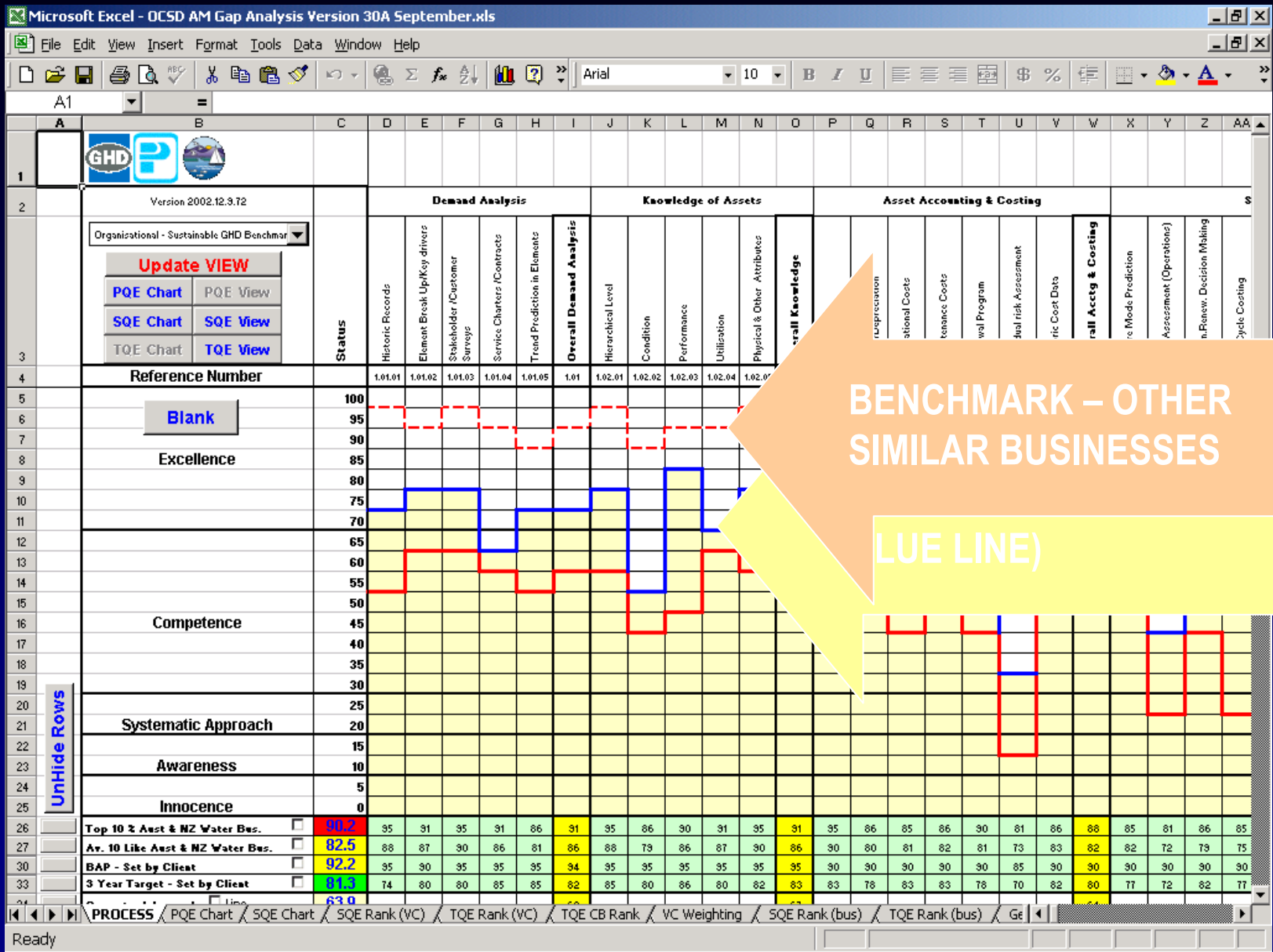
1. What records exist in regards to the historical trends for the demands for your infrastructure services?

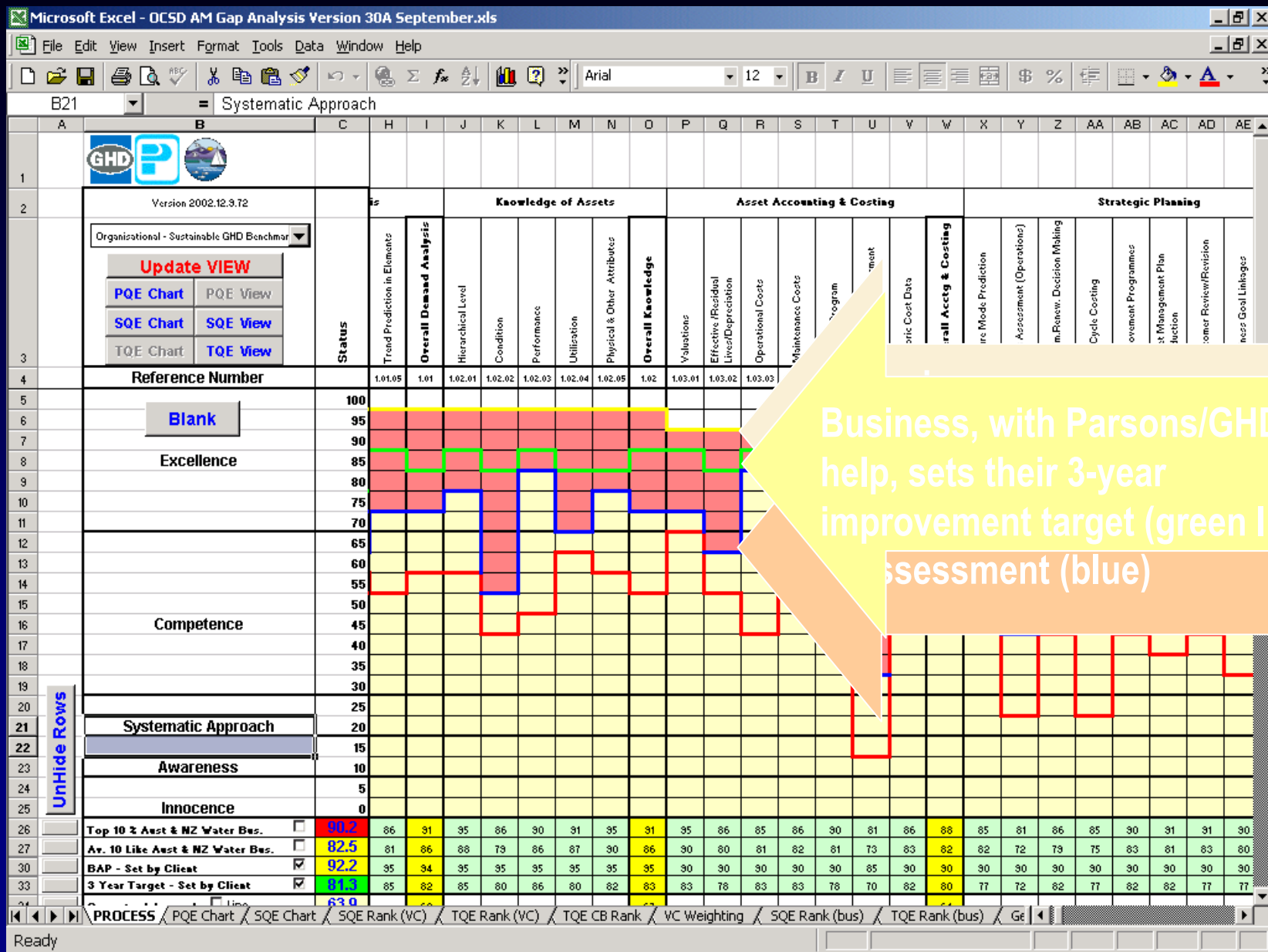
FINDINGS/CURRENT STATUS

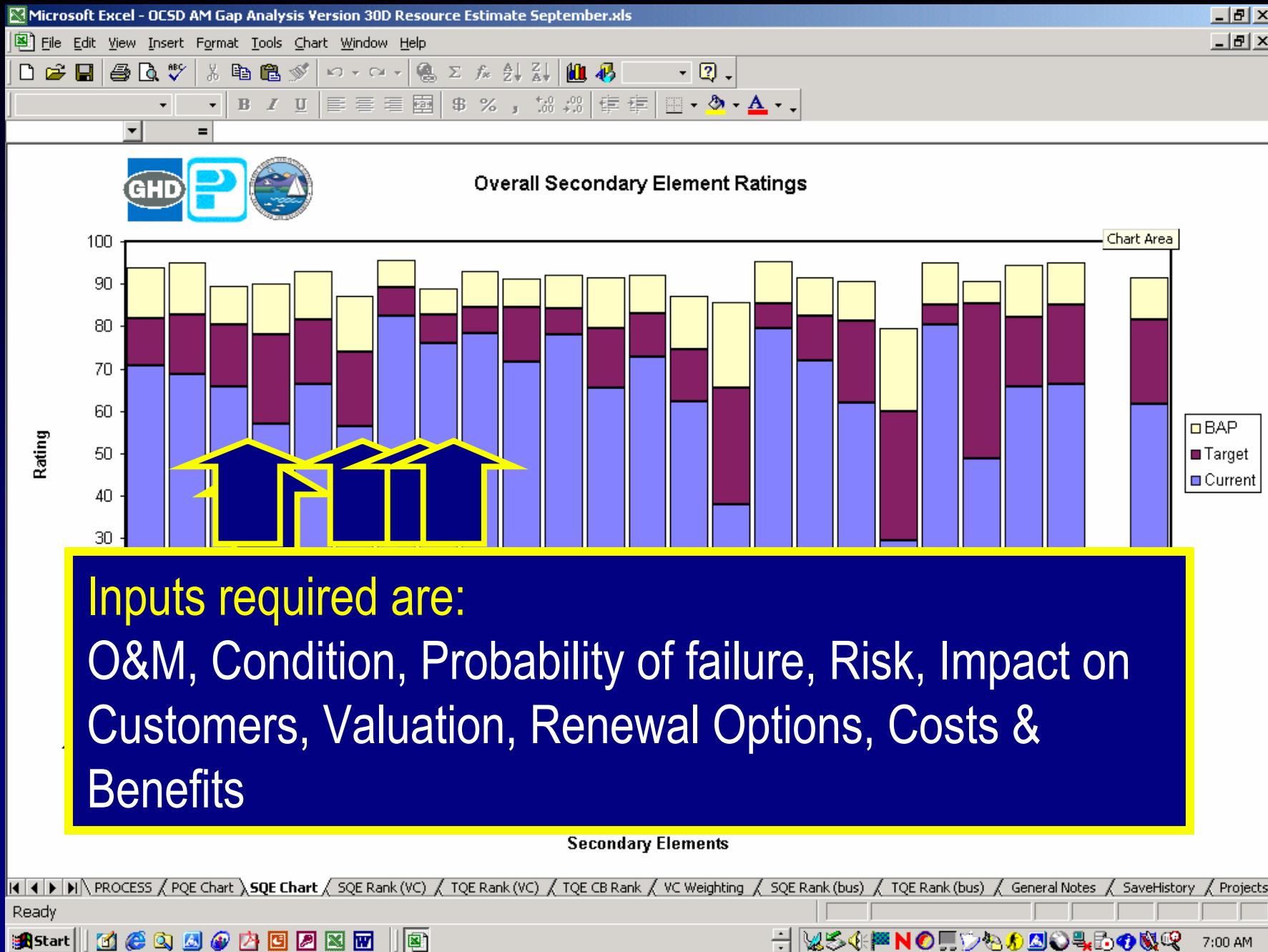
- A Strategic Plan is generated on a 5-year cycle as of current policy. Demand and trending of waste load is tracked for purposes of the plan and is key to overall agency planning. Mission changes, regulations, growth in population, unusual waste generators such as dairies is tracked by Planning and factored into the demand.
- The Strategic Plan looks out 20 years and sets stage for the 5 year CIP which in turn sets stage for the capital budget for any given year. As things come up, new projects are inserted into the plan. CIP includes renewal, Strategic Plan has not in the past.
- Renewals are not currently part of Strategic Plan. The RW Beck renewal study is used as a general reference for the Strategic Plan but is now over 5 years old and was general in nature.
- Strategic Planning bases its cost estimates on a database of costs and from consultants. Agency asks consultant to document why escalation from one design level to the next.

How are
WSO
practices
assessed?

Example of Structured Interview Question
Used in Assessing OCSD's Current AM Practices

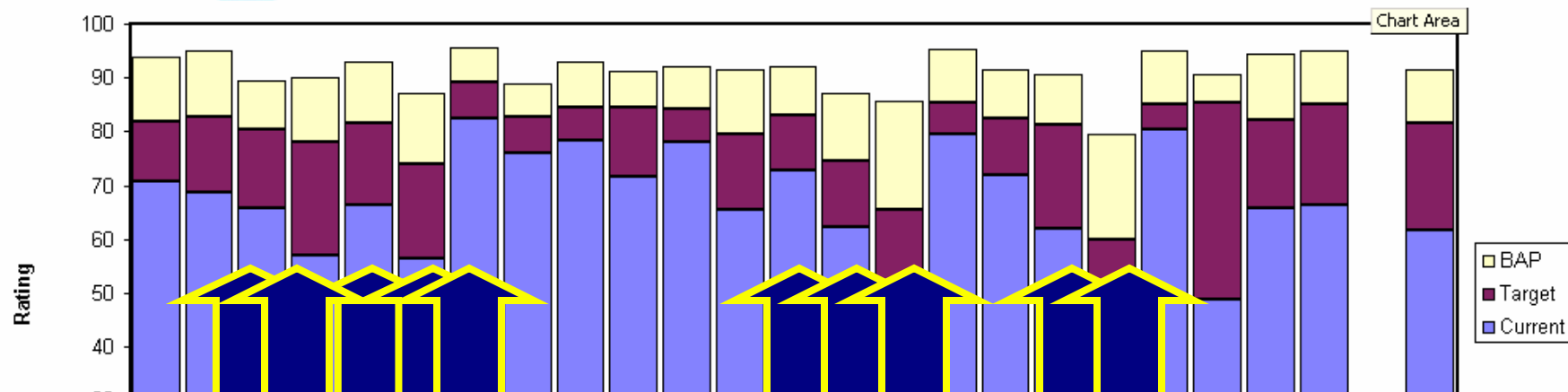








Overall Secondary Element Ratings



This may require improvements in:

- Processes & Practices
- Information Systems
- Data & Knowledge

Secondary Elements

What AM Will Mean to OCSD

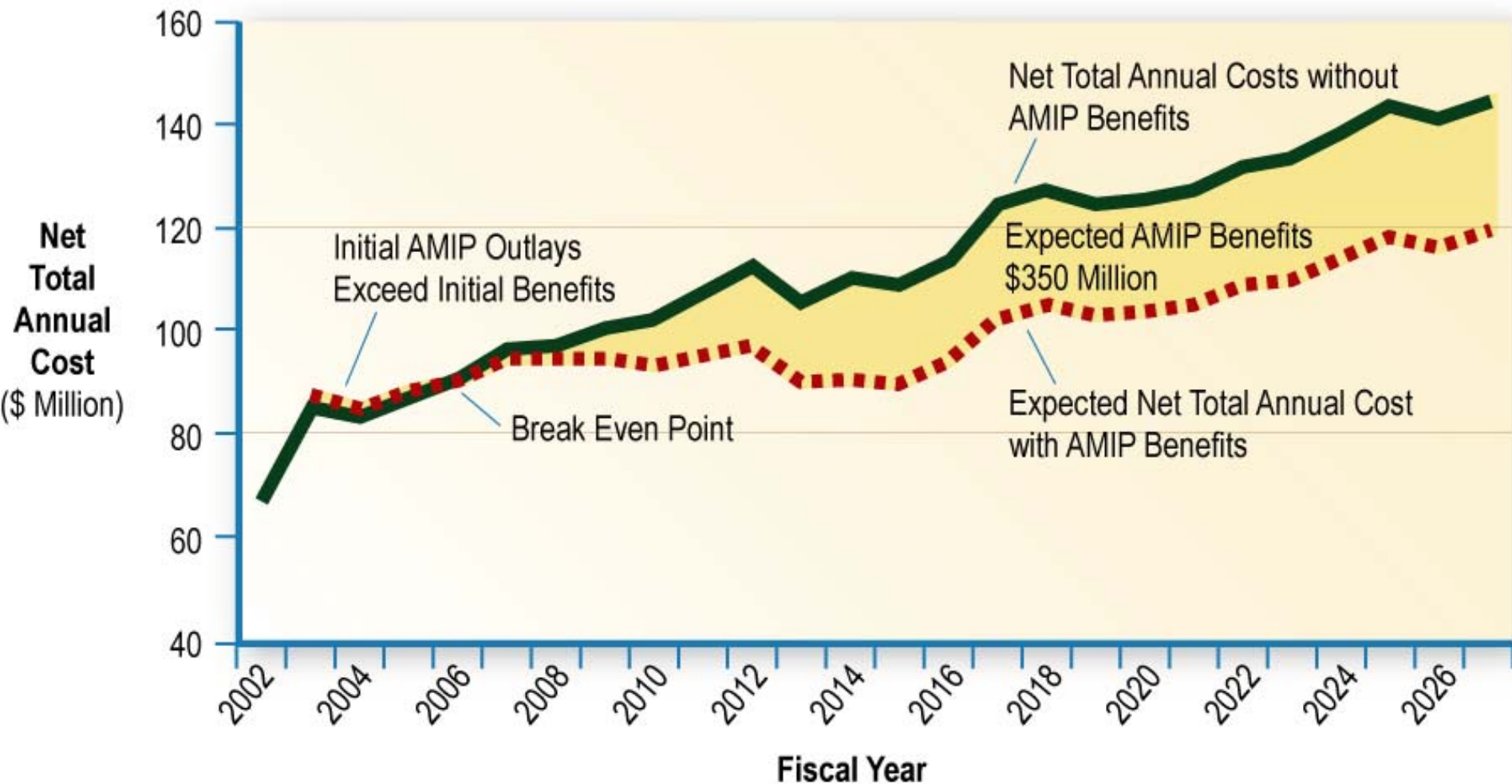
It is not a project, but a management paradigm

- ◆ Principles of AM organizes strategic, operational and tactical levels of planning
- ◆ Asset sustainability
- ◆ Total life cycle costing
- ◆ Risk-based decision making

What AM Will Mean to OCSD (cont'd)

- ◆ Decisions are made considering all factors – reduces siloism
- ◆ Continuous improvement program
- ◆ Sustainable infrastructure for the lowest Cost of Service

Asset Management Improvement Program (AMIP) Expected Benefits for OCSD

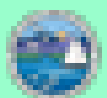


Advanced Asset Management Delivers Real Benefits...

In Addition to DART Savings ...

Program	DART Actual	Asset Management Improvement Program	
		Conservative	Optimistic
Cost	\$23M	\$38M	\$29M
Benefits *	\$180M	\$350M	\$495M
Benefit to Cost	8 to 1	9 to 1	17 to 1

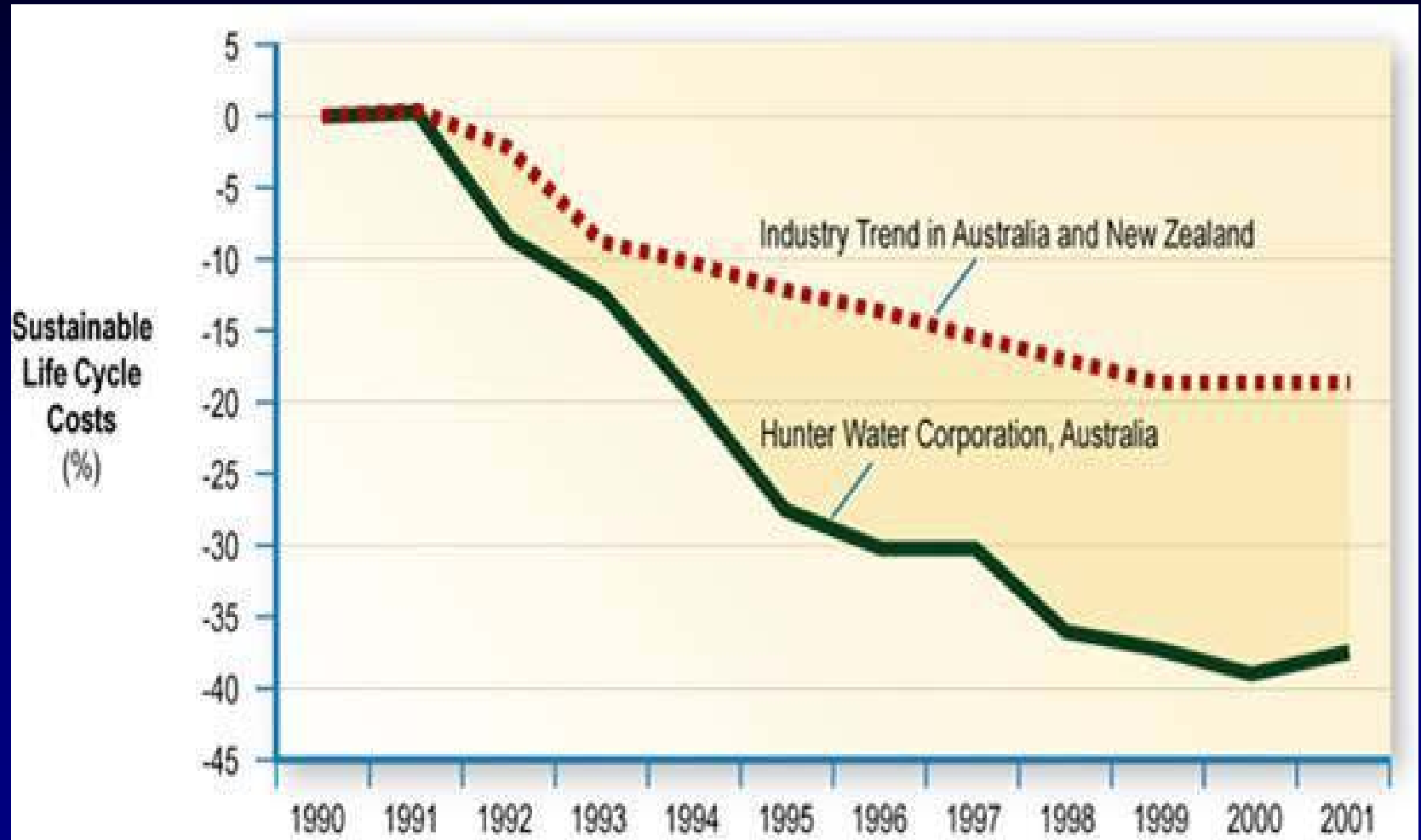
* Net Present Value



**OCSD Has Already Reduced
Life-Cycle Costs 15%**

U.S. EPA estimates cost
savings of 20–30%

Australasian Results



Expected Drivers

- ◆ Clean Water Act
 - ◆ Sanitary Sewer Overflows
 - ◆ National Pollution Discharge Elimination System
 - ◆ Total Maximum Daily Loads
- ◆ GASB 34
- ◆ cMOM

But Really It is... Better Business Decisions!

Implementation Challenges

- ◆ Few strong outside drivers
- ◆ Culture of technical silos
- ◆ Plate is already full
- ◆ Needs strong advocate at top of organization (stay the course)
- ◆ This is not taught in school (in the U.S.)

How We are Overcoming

- ◆ Education
- ◆ Gap Analysis Interviews
- ◆ Workshops on Gap and Future Vision (BAP)
- ◆ Asset Management Steering Committee
- ◆ Commitment of General Manager

It takes an AM Champion that will never rest!

Next Steps

- ◆ Develop Tactical Plans based on Gap Analysis
- ◆ Institute Quick Start projects already identified
 - ◆ Organizational structure
 - ◆ CMMS-SCADA-FIS
 - ◆ CAPEX review
 - ◆ Data flows and responsibilities
 - ◆ Asset plans with available data
- ◆ Implementation – 10-year rolling, continuous process

The End of the Story...

...the Rest of the Story

Strategic Plan was approved, BUT...

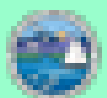
- ◆ Peer Review process
- ◆ Progress continues in-house
- ◆ Lessons learned
 - ◆ Board involvement
 - ◆ *The Catch 22*

Advanced Asset Management Delivers Real Benefits...

In Addition to DART Savings ...

Program	DART Actual	Asset Management Improvement Program	
		Conservative	Optimistic
Cost	\$23M	\$38M	\$29M
Benefits *	\$180M	\$350M	\$495M
Benefit to Cost	8 to 1	9 to 1	17 to 1

* Net Present Value



Questions?

Doug Stewart

Manager, Asset Management

(714) 593-7320

dstewart@ocsd.com



Orange County Sanitation District
www.ocsd.com